



GIS Strategies for Pennsylvania's Cultural Resources – A Cooperative Effort



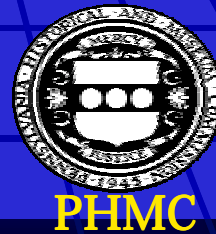
Presented by



Sarah Shea, GeoDecisions and
Peter Van Rossum, PHMC



CRGIS TEAM



Agenda

The Need for GIS

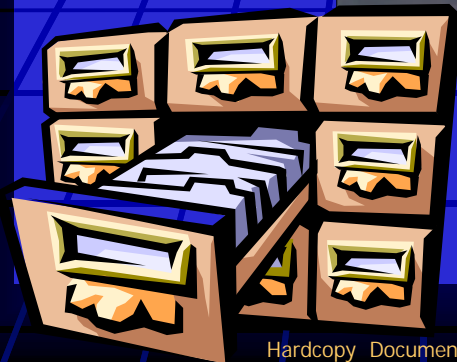
Approach

The Strategic Plan -
Recommendations

Making GIS Work



Field Work



Hardcopy Documents

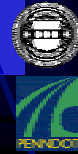


Mutual Needs for GIS

- Improve accessibility to CR data
- Enhance communications between PennDOT and the PHMC
- Improve data sharing among organizations and the public
- Maintain data security



Develop a GIS Strategic Plan



Strategic Plan Purpose

- Define and document GIS Direction
- Identify High Priority Activities
- Setting GIS benchmarks for the future years
- Estimate Costs, Duration, and Benefits
- Ensure Early Successes



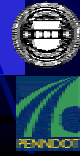
Provide Practical Solutions

Automate Current Work Tasks

Involve Other Partners

Utilize Existing Data

Provide Easy-to-Use Interfaces



Approach



Approach/Strategic Direction

Needs Assessment

Internal and external interviews

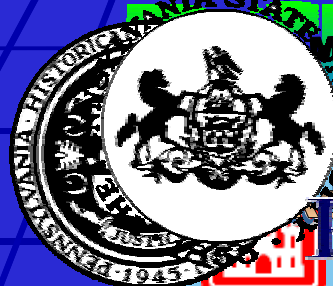


Interviewees



Preservation Services Division

KPMG
BEQ



Millner As

Division S

DCED

City

Pennsylvania

conservation Division

2016-17

US Army Corps of Engineers

Archaeology and Protection Division



Approach/Strategic Direction

Needs Assessment

Internal and external interviews

Analysis of information

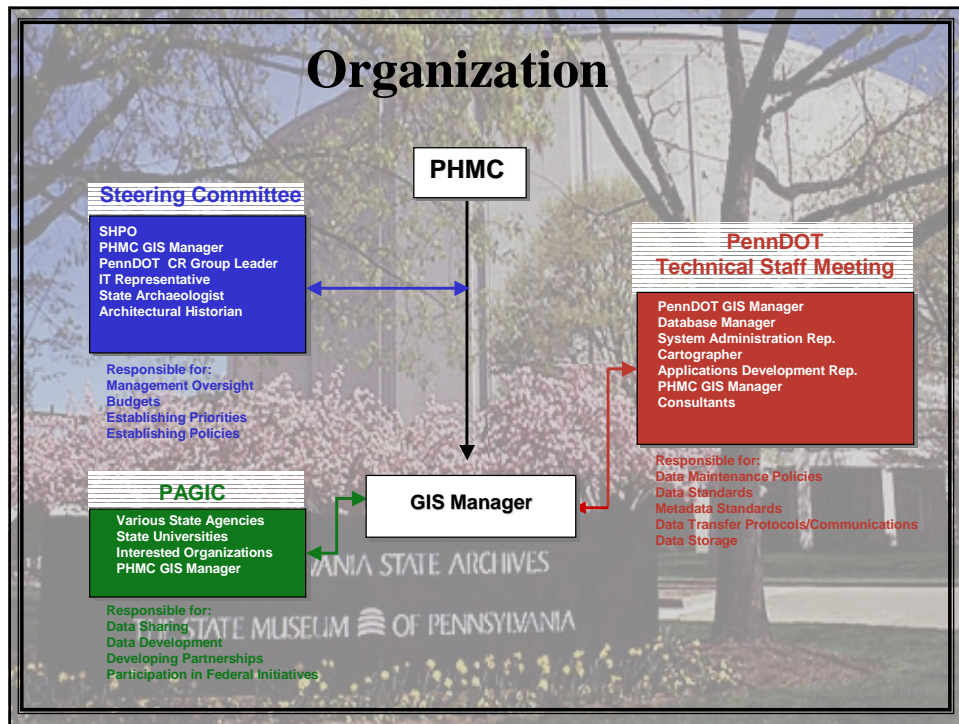
Strategic Plan



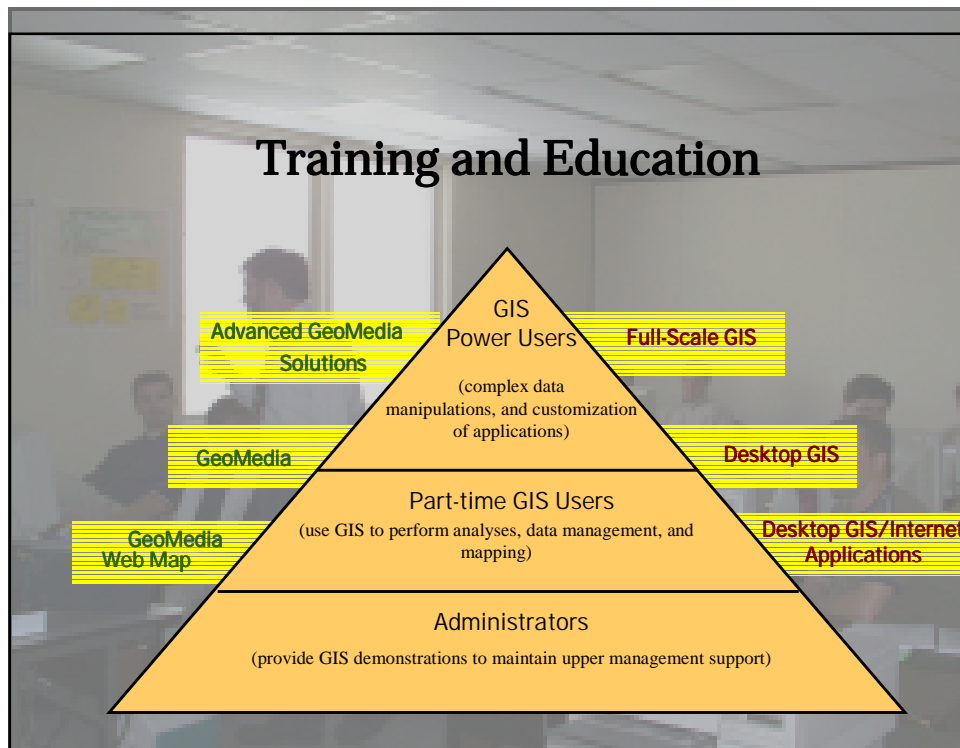
Recommendations



Organization

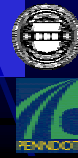


Training and Education



Data Requirements

- Adopt Metadata Standards
- Construct a statewide DRG backdrop
- Geocode Historic Structures
- Build a Historic Survey Report Database
- Migrate data to an ORACLE relational database



Data Accuracy Concerns

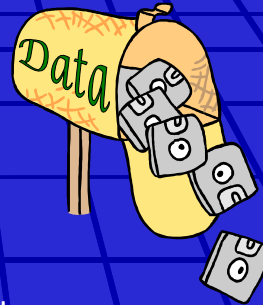
- Poor physical conditions of maps
- Data Accuracy
 - Incomplete data
 - Misinterpretations of resources
 - Inaccurate site locations (UTM coordinates)

✱ **Data Visibility**



Additional Partnerships


- Local governments
- Universities
- Other organizations
 - Athenaeum of Philadelphia



Cultural Resource Web Application

PENNSYLVANIA ARCHAEOLOGICAL SITE SURVEY

Site Location Information [1]



Site Name:

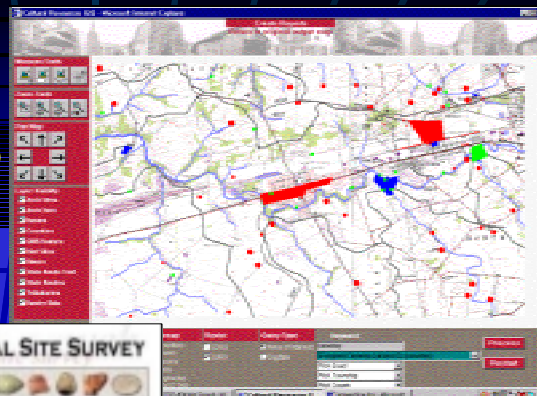
County:

Municipality:

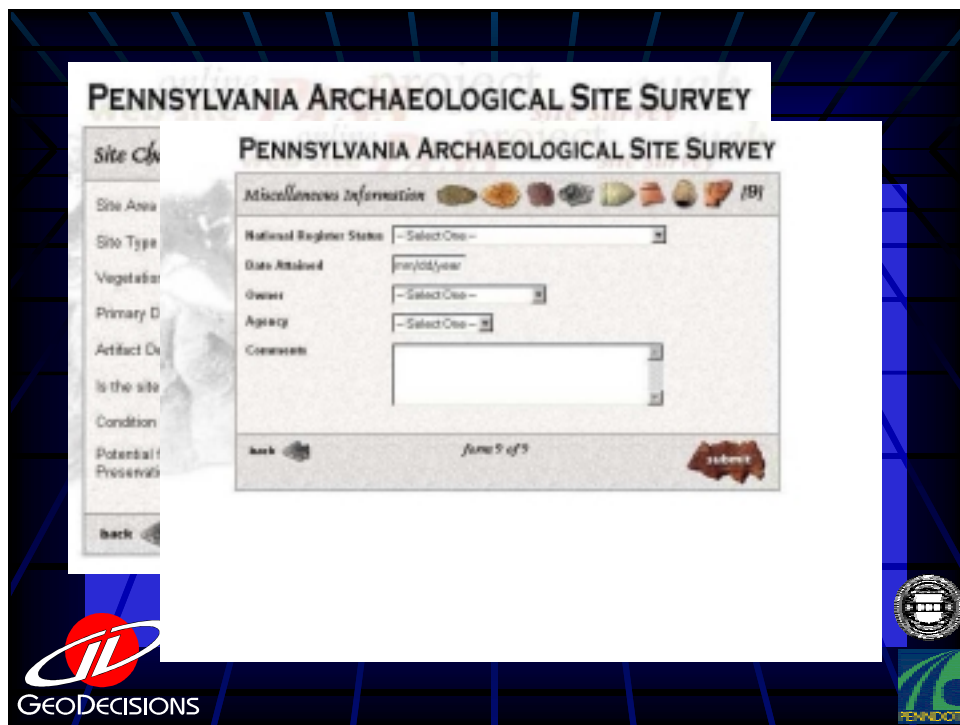
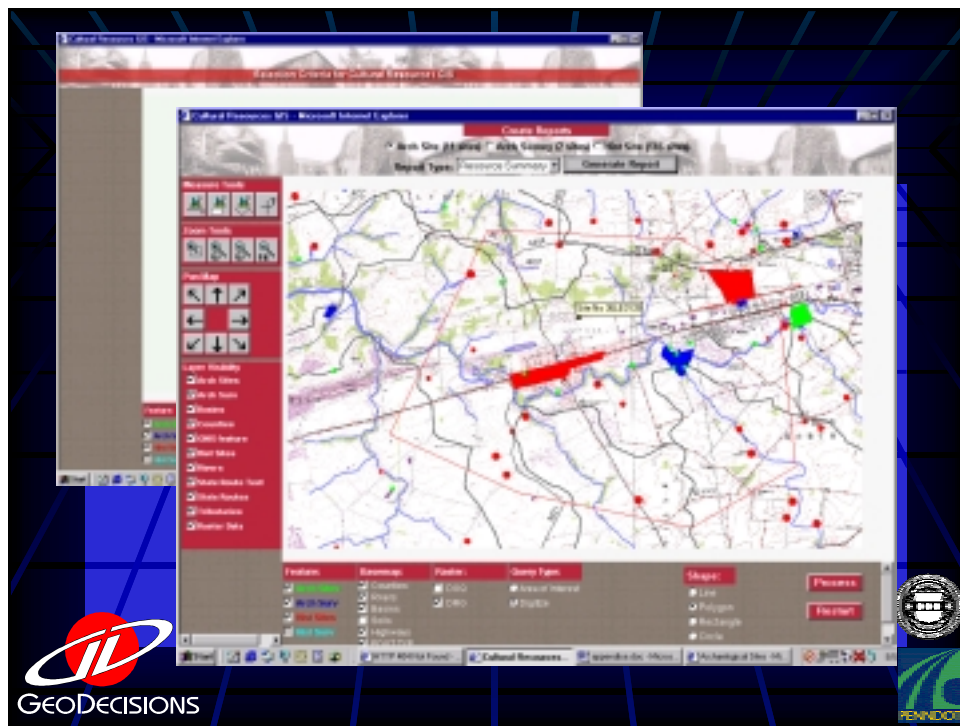
Block/Quadrant:



Form 1 of 9



**Online
PASS
Form**



Potential GIS Applications

Online Historic Survey Form

Field Access to Data

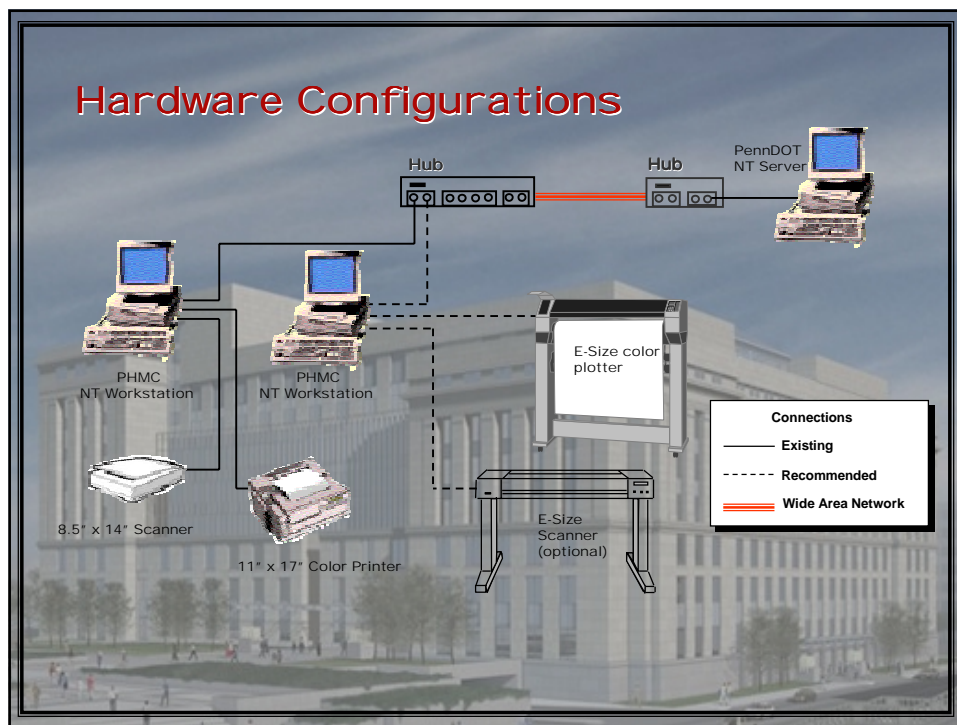
Archaeological Predictive Model

Customized data browsers

3-D Site Visualization



Hardware Configurations



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 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No.	Module Activity	Fiscal Year					Total
		2000-1	2001-2	2002-3	2003-4	2004-5	
1. Committees							
1.1	Establish and Participate in a Formal CRGIS Steering Committee	\$4,200	\$3,000	\$3,000	\$3,000	\$3,000	\$15,200
1.2	Participate in the Statewide GIS Coordination Efforts	\$600	\$600	\$600	\$600	\$600	\$2,400
1.3	Place a Representative into a PennDOT Technical User Group	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$12,000
2. Staff							
2.1	Hire Permanent In-House GIS Technical Staff	\$0	\$30,000	\$30,000	\$30,000	\$30,000	\$120,000
2.2	Contract Full-Time In-House Consultant	\$30,000	\$20,000	\$10,000	\$0	\$0	\$60,000
3. Training							
3.1	Provide Formal GIS Training and Education to the CRGIS Staff	\$8,800	\$16,400	\$16,400	\$16,400	\$16,400	\$58,000
4. Procedures and Policies							
4.1	Develop and Document Data Entry Procedures	\$7,200	\$0	\$0	\$0	\$0	\$7,200
4.2	Adopt Metadata Standards and Update Data Dictionary	\$4,800	\$1,680	\$1,680	\$1,680	\$1,680	\$9,840
4.3	Develop Standards for Report Submission in Electronic Format	\$0	\$4,800	\$0	\$0	\$0	\$4,800
5.4	Build a Historic Survey Report Database	\$0	\$10,000	\$0	\$0	\$0	\$10,000
5.5	Obtain a Road Layer with Address Ranges	\$2,400	\$0	\$0	\$0	\$0	\$2,400
5.6	Create a Pilot Project for Locating Historic Structures	\$3,400	\$0	\$0	\$0	\$0	\$3,400
5.7	Implement the Geocoding of the Historic Structures	\$0	\$10,720	\$0	\$0	\$0	\$10,720
6. Data Acquisition and Conversion							
6.1	Coordinate and Collect External Data	\$0	\$11,720	\$750	\$750	\$13,220	\$13,220
6.2	Scan Historic Maps	\$0	\$0	\$21,720	\$0	\$21,720	\$21,720
6.3	Explore the Utility of GPS Data Acquisition	\$0	\$0	\$20,360	\$300	\$20,660	\$20,660
6.4	Evaluate the Historic Structure Survey	\$9,600	\$0	\$0	\$0	\$0	\$9,600
6.5	Migrate Data to an ORACLE Relational Database	\$8,800	\$0	\$0	\$0	\$0	\$8,800
6.6	Review and Revise ORACLE Database	\$4,800	\$0	\$0	\$0	\$0	\$4,800
7. Potential Partnerships							
7.1	Investigate New Data Capturing Through Partnerships with Townships	\$0	\$9,600	\$0	\$0	\$0	\$9,600
7.2	Initiate CRGIS Marketing Strategies	\$6,325	\$6,325	\$6,325	\$6,325	\$6,325	\$25,300
8. Multimedia Data							
8.1	Distribute Various Multimedia Sources over the Internet	\$0	\$7,200	\$0	\$0	\$0	\$7,200
9. Maintaining and Updating Data							
9.1	Perform Quality Control and Assurance on Cultural Resource Data	\$22,320	\$3,360	\$3,360	\$3,360	\$3,360	\$32,400
9.2	Develop a Comprehensive Data Maintenance Plan	\$17,760	\$0	\$0	\$0	\$0	\$17,760
10. Security							
10.1	Research "Fuzzy Location" Methods	\$4,800	\$0	\$0	\$0	\$0	\$4,800
10.2	Create a Security Agreement to be Signed by Data Users	\$0	\$4,800	\$0	\$0	\$0	\$4,800
11. Application Development							
11.1	Cultural Resource Web Application						
11.2	Online PASS Form						
11.3	Online Historic Survey Form	\$45,000	\$0	\$0	\$0	\$0	\$45,000
11.4	Customized Data Browsers	\$45,000	\$45,000	\$0	\$0	\$0	\$90,000
11.5	Automated Mapping Application	\$85,000	\$0	\$0	\$0	\$0	\$85,000
11.6	Field Access to Data	\$0	\$33,280	\$440	\$440	\$440	\$34,240
11.7	Archaeological Predictive Modeling	\$0	\$50,000	\$100,000	\$0	\$150,000	\$150,000
11.8	Quarterly Inventory Report	\$0	\$0	\$35,000	\$0	\$35,000	\$35,000
11.9	3-D Site Visualization	\$0	\$0	\$40,000	\$40,000	\$40,000	\$120,000
11.10	Historic Site Predictive Modeling Research and Implementation	\$0	\$0	\$0	\$150,000	\$150,000	\$150,000
12. Application Integration							
12.1	Design an Interface to Incorporate the GIS into the ER Tracking System	\$0	\$17,760	\$0	\$0	\$0	\$17,760
12.2	Prioritize System Interfaces that could Benefit the CE System	\$0	\$4,800	\$0	\$0	\$0	\$4,800
13. Information Technology							
13.1	Purchase a Large Format Plotter	\$12,000	\$2,000	\$2,000	\$2,000	\$2,000	\$18,000
13.2	Purchase an Additional Workstation and Software	\$0	\$5,000	\$150	\$150	\$150	\$5,350
To avoid double counting, the hours and cost for hiring GIS Technician should not be added to any other itemized GIS Technician labor hours and costs shown elsewhere in the spreadsheet.							
		2000-1	2001-2	2002-3	2003-4	2004-5	Grand Total

Making GIS Work



Making GIS Work

Resolve Organizational issues

Review GIS Strategic Plan, at least, annually

Keep up with technology

- Advances in Web-based technology
- Advances in data storage technology
- Uses of GPS and field data collection technology



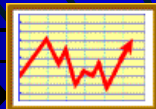
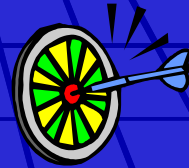
Making GIS Work

Pay attention to state and national GIS efforts

Partner in projects

Use the Plan and benchmark activities

Keep GIS Visible!



Benefits of the CRGIS Partnership

Efforts will result in both agencies saving time, effort, and costs in...

- Compliance reviews
- Research

Increased ability to preserve CR

Provide efficient, consistent, and high quality services

Data accuracy will improve – providing higher quality products

